

WHAT IS CLAIMED IS:

1. A control valve for a variable displacement compressor, for controlling a difference between discharge  
5 pressure and suction pressure in the variable displacement compressor such that the difference becomes equal to constant differential pressure set by an electromagnetic solenoid which is duty ratio controlled,

characterized in that a valve section that carries  
10 out opening and closing control of a passage between a first port into which refrigerant is introduced and a second port from which the refrigerant is guided out is formed by a spool valve.

15 2. The control valve according to claim 1, wherein the valve section includes a valve seat formed in a passage between the first port and the second port, a spool valve element disposed such that it can be moved into and away from a valve hole in an upstream side space  
20 or a downstream side space adjacent to the valve seat, a spring for urging the spool valve element in a valve-opening direction, and a pressure-sensing shaft for transmitting pressure introduced thereto from a third port, to the spool valve element.

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3. The control valve according to claim 2, wherein the spool valve element is disposed on the downstream side

of the valve seat, the discharge pressure in the variable displacement compressor being introduced into the first port, pressure in a crankcase of the variable displacement compressor being guided out from the second port, and the  
5 suction pressure in the variable displacement compressor being introduced into the third port.

4. The control valve according to claim 2, wherein the spool valve element is disposed on the upstream side  
10 of the valve seat, pressure in a crankcase of the variable displacement compressor being introduced into the first port, the suction pressure in the variable displacement compressor being guided out from the second port, and the discharge pressure in the variable displacement compressor  
15 being introduced into the third port.

5. The control valve according to claim 2, wherein the spool valve element and the pressure-sensing shaft are integrally formed with each other.  
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6. The control valve according to claim 2, wherein the spool valve element, the pressure-sensing shaft, and a drive shaft via which the electromagnetic solenoid actuates the spool valve element are integrally formed  
25 with each other.

7. The control valve according to claim 2, wherein a

predetermined clearance is provided between an end of the spool valve element moved into the valve hole, and an inner wall surface of the valve hole, so as to cause the clearance to function as an orifice.

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8. A control valve for a variable displacement compressor, for controlling a difference between discharge pressure and suction pressure in the variable displacement compressor such that the difference becomes equal to  
10 constant differential pressure set by an electromagnetic solenoid which is duty ratio controlled, characterized by comprising:

a first valve section that carries out opening and closing control of a passage between a first port into  
15 which refrigerant from a discharge chamber is introduced and a second port from which the refrigerant having a flow rate thereof controlled is guided out to a crankcase; and

a second valve section that carries out opening and closing control of a passage between a third port into  
20 which the refrigerant is introduced from the crankcase and a fourth port from which the refrigerant having a flow rate thereof controlled is guided out to a suction chamber, in a manner interlocked with operation of the first valve section, and

25 wherein at least one of the first valve section and the second valve section is formed by a spool valve whose valve element can be moved into and away from a valve hole

of a valve seat associated therewith.

9. The control valve according to claim 8, wherein a valve element of the first valve section and a valve  
5 element of the second valve section are integrally formed with each other.

10. The control valve according to claim 8, wherein the valve element of the first valve section, the valve  
10 element of the second valve section, and a drive shaft via which the electromagnetic solenoid actuates the valve elements are integrally formed with each other.

11. The control valve according to claim 8, wherein  
15 a predetermined clearance is provided between an end of the valve element of the spool valve moved into the valve hole, and an inner wall surface of the valve hole, so as to cause the clearance to function as an orifice.